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United States Patent [19]

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Kast et al.

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[54] HAND AND FOREARM PROTECTOR

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55432

4,967,419 11/1990 Elliott 2/161.6
5,070,541 12/1991 Goss 2/16
5,073,988 12/1991 Lewis, Jr et al. 2/162

Primary Examiner—Michael A. Neas

[21] Appl. No.: 968,977

[22] Filed: Nov. 12, 1997

[51] Int. Cl.⁶ A41D 19/00

[52] U.S. Cl. 2/16; 2/159; 2/162

[58] Field of Search 2/16, 159, 161.6,
2/162, 170, 59, 125, 126, 163, 269, 270

[56] References Cited

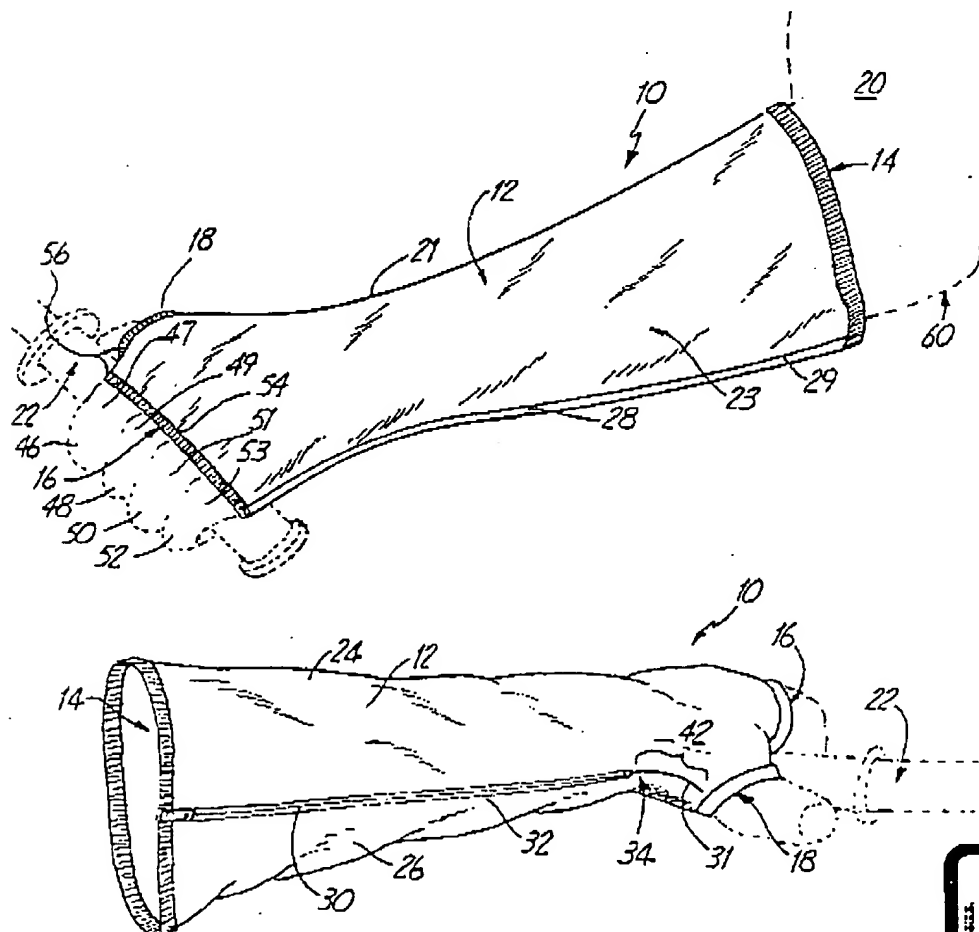
U.S. PATENT DOCUMENTS

D. 299,562	1/1989	Lee	D29/20
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[57] ABSTRACT

A hand and forearm protector having a sleeve with a primary opening at one end and at another end a discrete finger opening and a discrete thumb opening also includes a longitudinal opening disposed along the sleeve. The longitudinal opening extends from a point directly adjacent a juncture of the carpal bones and the radius of a hand of the wearer and extends rearwardly along an forward side of the forearm approximately to the primary opening at the end of the sleeve. A zipper is included that extends from the juncture of the sleeve that overlies the carpal bones and radius and the zipper extends rearwardly to the end of the sleeve for bringing the edges of the sleeve together to conform the sleeve to the forearm of the wearer.

4 Claims, 5 Drawing Sheets



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EXHIBIT

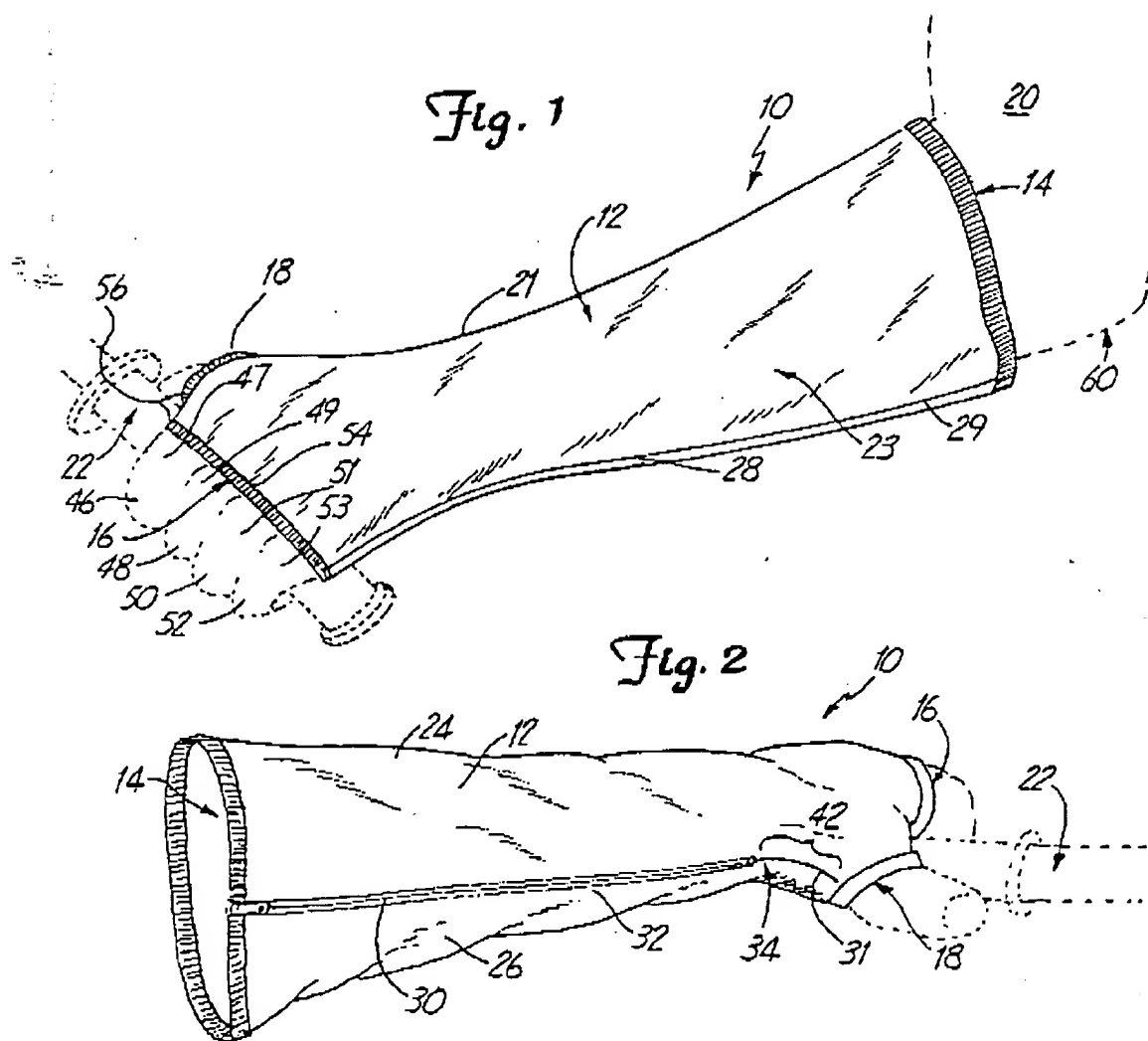
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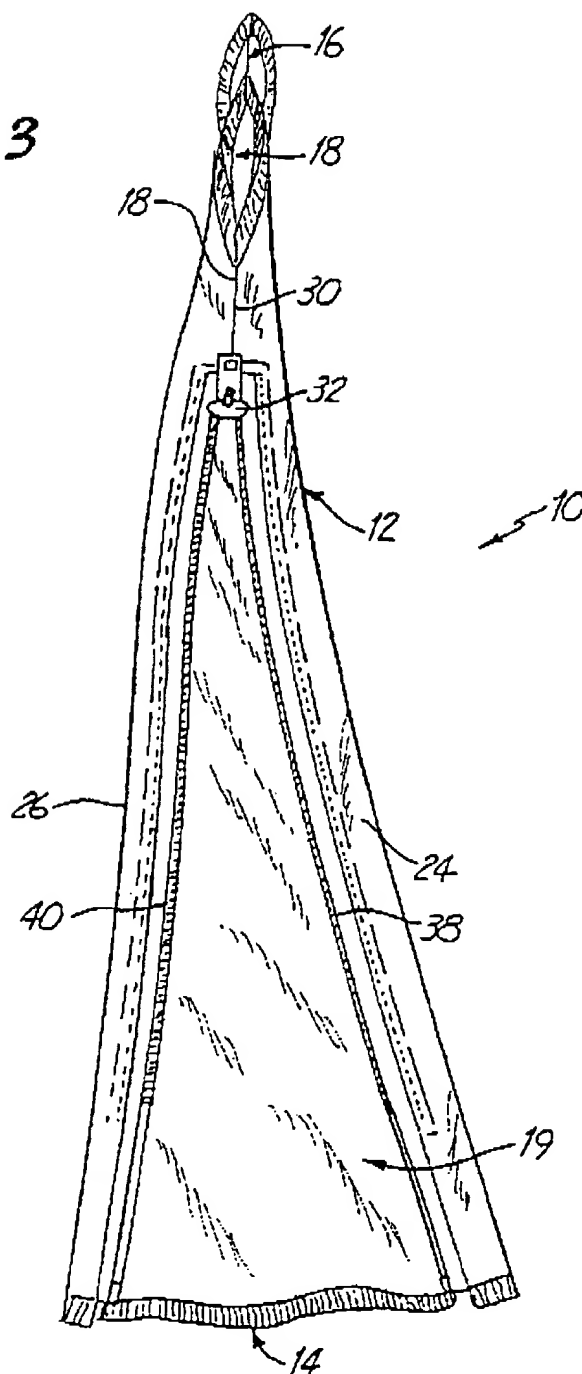
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Fig. 3



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Fig. 4

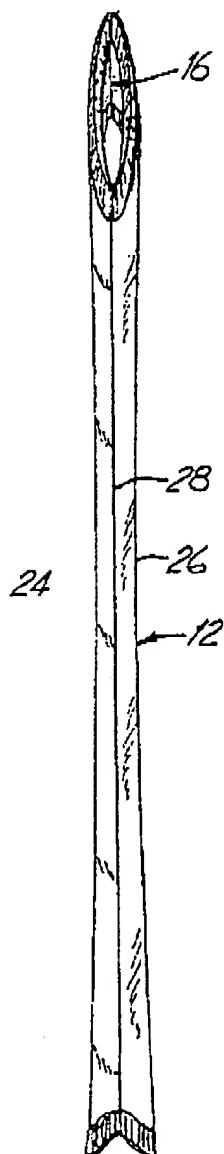
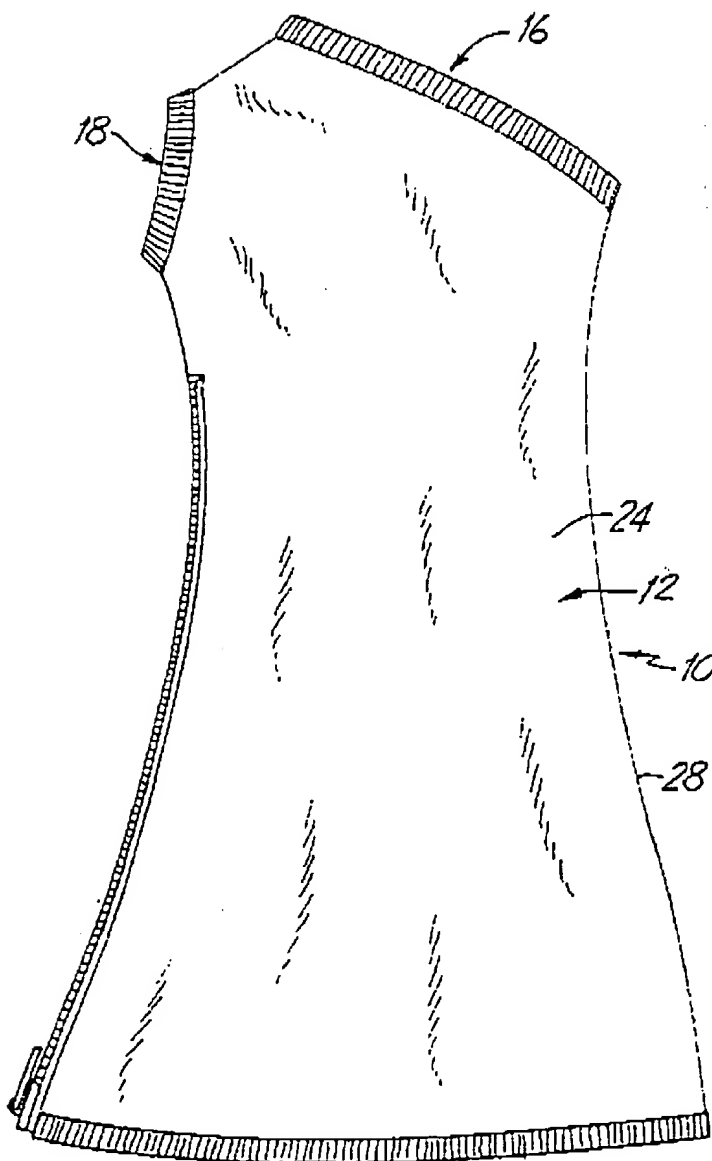


Fig. 5



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Fig. 6

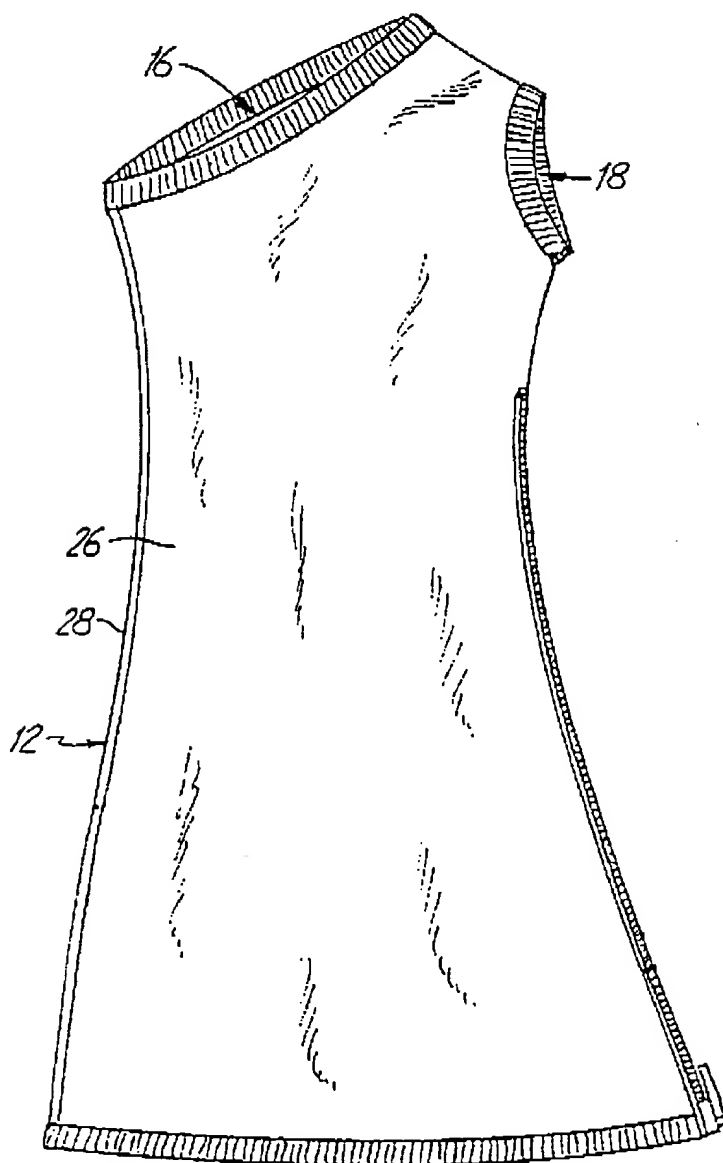
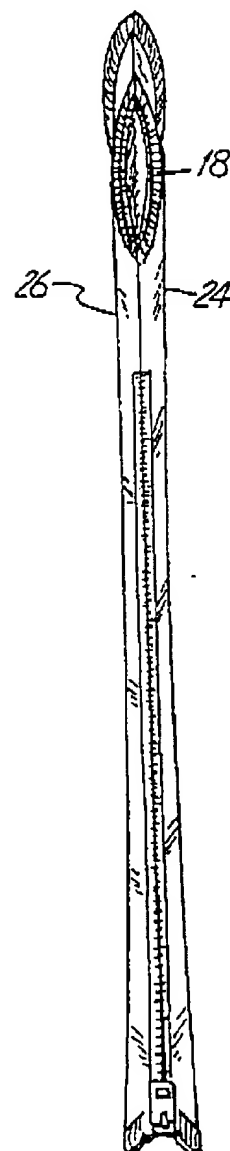


Fig. 7



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Fig. 8

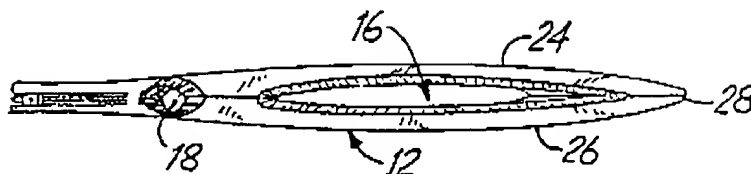
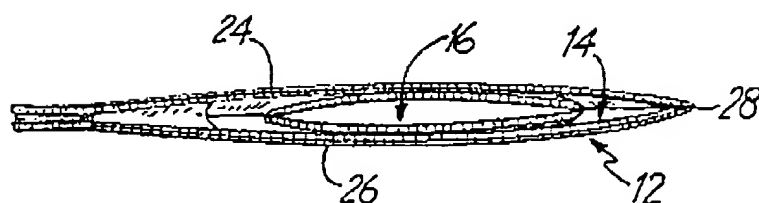


Fig. 9



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HAND AND FOREARM PROTECTOR

CROSS REFERENCE TO RELATED APPLICATION

Applicant claims the priority date of U.S. Provisional Application 60/046,481.

BACKGROUND OF THE INVENTION

The present invention relates to hand and forearm protectors, and in particular, it relates to a hand and forearm protector that is also visually appealing.

Coverings for the hand and forearm or for the forearm or hand individually are well known. There are numerous reasons why such hand and forearm protectors are used. Some of these reasons relate to protection in athletics, for example, linemen wear forearm protectors in football or in-line skaters wear hand and wrist guards. Hand and forearm protectors also are used for medical reasons as restraining devices such as to protect a sprained wrist. Additional examples of hand and forearm protectors are found in the following U.S. patents.

Inventor	U.S. Pat. No.	
Chang	4,011,596	
Finnieston et al.	4,765,319	
Finnieston et al.	4,873,968	
Elliot	4,967,419	
Matthews	5,402,536	
Olson et al.	5,526,531	
Pierce, Jr.	Des. 290,766	
Pierce, Jr.	Des. 330,676	

BRIEF SUMMARY OF THE INVENTION

The present invention includes a hand and forearm protector having a sleeve. The sleeve has a primary opening at one end and at another end a discrete finger opening and a discrete thumb opening. A longitudinal opening is disposed along the sleeve and extends from a point directly proximal a juncture of the carpal bones and the radius of a hand of the wearer rearwardly along a foreword side of the forearm to approximately the end of the sleeve. A closure mechanism, preferably a zipper, extends from the point of the sleeve overlying the juncture of the carpal bones and radius rearwardly to the end of the sleeve for bringing the edges of the sleeve together to conform the sleeve to the forearm of the wearer.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the forearm protector of the present invention.

FIG. 2 is a perspective view from a different angle of the forearm protector.

FIG. 3 is a side view of the forearm protector with a zipper in an open position.

FIG. 4 is a left side plan view of the forearm protector.

FIG. 5 is a top plan view of the forearm protector.

FIG. 6 is a bottom plan view of the forearm protector.

FIG. 7 is a right side plan view of the forearm protector.

FIG. 8 is a front plan view.

FIG. 9 is a rear plan view.

DETAILED DESCRIPTION OF THE
PREFERRED EMBODIMENTS

The hand and forearm protector of the present invention is generally illustrated at 10 in FIGS. 1-9. The hand and forearm protector 10 is used to cover and protect a proximal portion of a hand 21 and an entire forearm 23 of a motor-

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cycle driver 20 when riding and gripping handlebars 22 of a motorcycle (not illustrated). The hand and forearm protector 10 is also designed to be worn as a decorative piece of clothing and as such its use is not limited to driving motorcycles.

As best illustrated in FIGS. 1 and 2, the hand and forearm protector 10 includes a sleeve portion 12 having at one end a forearm opening 14 and at another end a discrete digit opening 16 and a discrete thumb opening 18. The thumb opening 18 is an opening that is discrete from and separate from the digit opening 16. The openings 16 and 18 are separated by a section 56 of the sleeve 12. The sleeve also includes a longitudinal opening 19 that overlies a forward forearm portion. By forward forearm is meant that portion of the forearm that faces forward when the arms are left to hang naturally and loosely along side the body.

The sleeve 12 of the hand and forearm protector 10 is made of a flexible continuous piece of fabric sewn to create a cylindrical-type structure into which the hand 21 is inserted along with the entire forearm 23 of the wearer 20. The sleeve 12 may be made of any suitable fabric that is pliable, wear resistant and suitable for use outdoors. A preferred material is leather although other materials suitable or popular for outdoor use are included within the scope of the present invention.

For purposes of description in this application, the surface of the sleeve 12 is divided into an outer surface segment 24 and an inner surface segment 26 joined at a rearward surface segment 28. The outer surface segment faces away from the body when the arms are left to hang naturally and loosely along side the body while the inner segment faces the body. Similarly, the rearward surface segment 28 covers a rearward portion of the forearm 23. The sleeve 12 has a continuous uninterrupted surface through the outer segment 24, the inner segment 26 and the rearward segment surface segment 28 as illustrated in the Figures. The sleeve 12 extends away from the hand, to approximately 1 to 1½ inches from the wearers elbow 60, as best illustrated in FIG. 1. In one preferred embodiment, the sleeve 12 is made of two distinct pieces of leather, joined by sewing along a line 29 that extends along the entire length of the sleeve as best illustrated in FIG. 1, and sewn along a line 33 between the thumb opening 18 and digit opening 16, as best illustrated in FIGS. 5 and 6, and sewn along a line 31 that extends from the thumb opening 18 to the longitudinal opening 19.

A zipper 32 is provided to open and close the opening 19. The zipper is positioned to start at a point 34 on the sleeve that is directly adjacent rearwardly of the ball of the thumb which is sometimes referred to as the thenar muscle. In relation to bone structure, this position may also be defined as juncture of the carpal bones and radius. The sleeve is sewn along the line 31 such that the sleeve conforms in a snug fashion to the ball of the thumb.

The longitudinal opening 19 extends from this position to the end of the sleeve at the forearm opening 14 to permit inserting the hand of the wearer into the forward portion of the sleeve and once inserted, the zipper 32 is closed to conform the sleeve to the wearer's forearm. The zipper 32 when in a closed position brings an upper edge 38 of the segment 24 and a lower edge 40 of the segment 26 together to conform the sleeve 12 to the forearm 23 of the wearer 20 in a form-fitting fashion.

To insert the hand and forearm into the forearm protector of the present invention, the zipper 32 is positioned in an open position as illustrated in FIG. 3 which permits opening 19 to widen. An inner flap section 44 triangular in configu-

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ration is attached along one edge to an inner surface of the segment 26 and at another edge to an inner surface of the segment 24. The flap 44 is disposed such that its apex is proximate the ball of the thumb while its base is disposed proximate the forearm opening 14. The flap section 44 5 protects the user's forearm from being pinched by the zipper 32 when the slide of the zipper 32 is moved.

The digit opening 16 is sufficiently wide for all four fingers 46, 48, 50 and 52 to extend therethrough. The opening 16 includes an edge 54 which encircles all four fingers as a unit. The sleeve 12 of the hand and forearm protector extends up to each fingers' first set of joints or knuckles 47, 49, 51 and 53. The first set of joints of the fingers 46, 48, 50 and 52 are defined as those joints or knuckles that are formed at the articulation of the metacarpal bone and the phalange of each finger. The sleeve 12 does not extend over the joints or knuckles 47, 49, 51 and 53 thereby exposing those knuckles as best illustrated in FIG. 1 wherein the edge 54 lies directly adjacent to the exposed knuckles 47, 49, 51 and 53. 10 15 20

Similarly, the thumb opening 18 has an edge 55 that is disposed to extend the sleeve to a position such that the first joint or knuckle of the thumb that is formed between the metacarpal bone and the phalange is exposed. 25

It will be appreciated that the position of the zipper 32 that is along an inner section of the forearm, permits the application of decorative designs along the outer segment 24, the rearward segment 28 and the inner segment 26. Indicia such as designs and other decorative features may be placed on the sleeve without interference or interruption by closure or fastening mechanisms that are found in prior art forearm protectors. The tight fit or conformance to the proximal portion of the hand exposing all of the knuckles of the hand and thumb is very visually pleasing. 30 35

Although the present invention has been described with reference to preferred embodiments, workers skilled in the

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art will recognize that changes may be made in form and detail without departing from the spirit and scope of the invention.

We claim:

- 5 1. A hand and forearm protector comprising:
 - a sleeve for overlying a forearm and a proximal hand portion of a wearer;
 - a primary opening at one end of the sleeve;
 - 10 a discrete digit opening disposed at another end of the sleeve wherein the wearer's fingers extend therethrough,
wherein the sleeve extends to a point adjacent a first set of
joints of the wearer's fingers, leaving the joints exposed
- 15 The sleeve extends past the set of joints of the metacarpals and the phalanges to a point adjacent a first set of joints of the phalanges which are adjacent to the set of joints of the metacarpals and the phalanges of the wearer's fingers, leaving the joints of the phalanges exposed;
- 20 a discrete thumb opening disposed at another end of the sleeve wherein the sleeve extends beyond the joint of the phalanges and first metacarpal and is adjacent to the joint of the phalanges, leaving the joint exposed;
- 25 a longitudinal opening along the sleeve extending adjacent from a point that overlies a juncture of the carpal bones and the radius and extending rearwardly towards the primary opening to proximately the end of the sleeve; and
- 30 a zipper for closing the longitudinal opening to conform the sleeve to the forearm of the wearer, the closure being disposed to overlie a forward side of the forearm.
2. The protector of claim 1 and further including a
- 35 protective flap that extends between edges of the opening protecting the wearer from being pinched by the zipper.
3. The protector of claim 1 wherein the sleeve extends to approximately 1 to 1½ inches from an elbow of the wearer.
4. The protector of claim 1 wherein the sleeve includes
- 35 decorative indicia on an uninterrupted surface.

5. The protector of claim 1 wherein the sleeve extends to a first joint of the thumb, leaving the joint exposed.

6. The protector of claim 1 wherein the sleeve extends to a point adjacent a first knuckle of the fingers and thumb, leaving the knuckles exposed.

DECLARATION

IN REISSUE APPLICATION

Attorney Docket No.

R597.12-0003

SPECIFICATION AND INVENTORSHIP IDENTIFICATION

As a below named inventor, I declare that:

1. I am a citizen of the United States of America and resident of Fridley, Minnesota, now residing at 98 - 64th Wuy, Fridley, Minnesota.
2. I believe that I am the original, first and sole inventor of the invention described and claimed in U.S. Patent No. 5,878,435, issued March 9, 1999, and in this reissue application.
3. I have reviewed and understand the contents of the reissue specification, above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information that is known to me to be material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).
4. I do not know and do not believe that the invention disclosed and claimed in my U.S. Patent No. 5,878,435 and in this reissue application was ever known and used in the United States before I made the invention.
5. I believe the original patent, U.S. Patent No. 5,878,435, to be partly inoperative or invalid by reason of a defective specification or drawing.
6. In reference to paragraph 5, I believe U.S. Patent No. 5,878,435 is partly inoperative and contains at least one error by reason that I did not claim the priority date of Provisional Application No. 60/046,481. As a result, I claimed less in my U.S. Patent No. 5,878,435 than I had a right to claim.
7. I believe the original patent, U.S. Patent No. 5,878,435, is partly inoperative or invalid by reason that I claimed more or less than I had the right to claim in the patent.
8. In reference to paragraph 7, I believe U.S. Patent No. 5,878,435 is partly inoperative and contains at least one error by reason that I claimed more than my invention in claims of the scope to which I am not entitled and in terms extending beyond its intended scope or the specification of the patent application. Subject matter was drafted into the claims which was not supported by the specification. As a result, I claimed more in my U.S. Patent No. 5,878,435 than I had a right to claim.

9. By virtue of my original disclosure and the teaching contained in my U.S. Patent No. 5,878,435, I believe that I am entitled to claim my invention to its full extent, as defined in claims 1-7 of the reissue application.

10. I realize that I did not understand the full significance of the language of the claims at the time of filing or during the prosecution of my U.S. Patent No. 5,878,435. I was not familiar with the patent claims, their interpretation, and the patent process to realize that the priority date of U.S. Provisional Application No. 60/046,481 was not claimed in my U.S. Patent No. 5,878,435. Additionally, I did not realize that I claimed more than my invention allowed making my U.S. Patent No. 5,878,435 partially inoperative.

11. All errors which are being corrected in the present reissue application up to the time of filing of this declaration arose without any deceptive intention on my part, as the applicant.

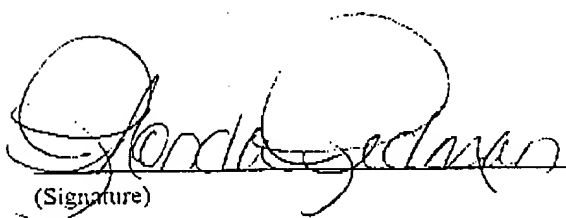
All statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true; and further, these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

DESIGNATION OF CORRESPONDENCE ADDRESS

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Inventor:


(Signature)

Date:

3/1/2000

Inventor:

Rhonda S. Redman
(Printed Name)

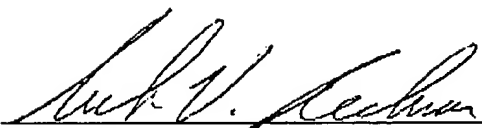
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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 5,878,435

DATED : MARCH 9, 1999

INVENTOR(S) : RHONDA S. KAST ET AL.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Col. 4, Line 14, after "fingers" insert --,--

Col. 4, Line 20, after "phalanges" insert --,--

Col. 4, Line 21, delete "alongitudinal", and insert --a longitudinal--

Signed and Sealed this
Fifth Day of October, 1999

Attest:



Q. TODD DICKINSON

Attesting Officer

Acting Commissioner of Patents and Trademarks

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